

CASE REPORTS

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Evidence of Skeletal Muscle Involvement in Psittacosis

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PSITTACOSIS (ORNITHOSIS) is a relatively uncommon systemic disease.¹ The clinical syndrome is characterized by high fever and severe headache associated with a nonproductive cough. In severely ill patients the respiratory symptoms dominate the clinical features with progressive pulmonary insufficiency. Most clinical attention has rightfully been directed to the pulmonary problems, though it has long been recognized that other organs are frequently involved.² A case of psittacosis with probable myositis in which, for the first time, enzyme studies were carried out to confirm the diagnosis is here reported.

Report of a Case

A 43-year-old man was seen in the outpatient clinics at San Francisco General Hospital on March 16, 1972, for gradually increasing malaise, nausea and vomiting, elevated temperature, dry cough, fatigue, headache, and generalized myalgia that had been present for 24 hours. The temperature was 40°C (104°F), pulse rate 138 beats per minute, and blood pressure 150/100 mm of mercury. Rales were heard at the left lung base. A

chest roentgenogram showed a small left perihilar infiltrate. The leukocyte count was 8,600 cells per cu mm. Viral pneumonia was diagnosed and aspirin was prescribed. During the next two days the patient improved as temperature returned to normal with relief of myalgia, diminished cough, and abatement of other symptoms. In the evening of the third day of aspirin intake, the temperature rose and the patient became extremely fatigued.

He was admitted to the hospital the next day (March 20, 1972) because of an abnormally high temperature; he did not have a headache, chest pain, muscle pain, joint pain, or dyspnea. The medical history and review of systems were unremarkable except for consumption of a moderate amount of alcohol daily for a number of years. There had been no illness among the patient's family or acquaintances. He worked as a maintenance man for a firm that serviced a number of retail stores. It was learned on the fourth hospital day that one of these stores was a pet shop that contained many parakeets. He had last worked in the pet shop approximately ten days before onset of symptoms. He had no pets at home.

Physical Examination

The patient was apparently in no acute distress. The temperature was 40.4°C (104.6°F), pulse 130 beats per minute and regular, respiratory rate 16 per minute, and blood pressure 140/100 mm of mercury. The skin was warm and dry. Palpable lymph nodes were not enlarged. The pharynx was injected without exudate. Dullness and egophony were noted in the region of the left upper lung fields. The heart was not enlarged. A grade 2/6 systolic ejection murmur was heard at the left sternal border without radiation; heart sounds were normal. There was no venous distension; peripheral pulses were intact. The abdomen was distended but there was no visceromegaly nor palpable masses. No abnormalities were detected in the genitalia, muscular-skeletal system, or extremities. No abnormalities were noted on neurologic examination.

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CASE REPORT

Laboratory Results

Hemoglobin was 13.3 grams per 100 ml, hematocrit 39 ml per 100 ml, and leukocyte count 7,900 per cu mm with 54 percent polymorphonuclear cells, 29 percent band forms, and 17 percent lymphocytes. Platelet count was within normal limits. Serum sodium was 125 mEq, potassium 5 mEq, chloride 105 mEq, bicarbonate 25 mEq per liter, blood urea nitrogen 10 mg, and creatinine 0.7 mg per 100 ml. Serum glutamic oxaloacetic transaminase (SGOT) was 950, lactic dehydrogenase (LDH) 1,600, and creatine phosphokinase (CPK) 67,200 units, all expressed as International Units per liter. Urinalysis revealed trace ketones, 3+ protein, many hyaline casts, and occasional white and red blood cells. A Gram-stained sputum specimen showed polymorphonuclear cells with no predominant microorganisms. A chest roentgenogram showed an infiltrate in the left upper lobe. The electrocardiogram showed no abnormalities.

Hospital Course

After collection of specimens for culture, including a transtracheal aspirate, 600,000 units of procaine penicillin G was administered intramuscularly twice a day. On day 2 the temperature was 40°C (104°F), the sputum production increased and contained polymorphonuclear cells but no bacteria by smear, and an electrocardiogram again showed no abnormalities. The transtracheal culture specimen grew no organisms. On day 3 the patient began to complain of shortness of breath; a chest roentgenogram showed a dense infiltrate in the right lower lobe as well as in the left upper lobe. The temperature was still 40°C; arterial blood P_{O_2} was 46 mm of mercury, P_{CO_2} 35 mm, and the pH 7.36. Penicillin was discontinued and cephalothin, 2 grams every six hours intravenously, and kanamycin, 500 mg every 12 hours intramuscularly, were begun. On day 4 the temperature was still elevated. The SGOT was 725, LDH 970, CPK 31,200, and aldolase 56.6 units. Arterial blood gases during nasal administration of 7 liters per minute of oxygen were P_{CO_2} 30 mm of mercury, P_{O_2} 55 mm, and the pH 7.37. The patient continued to be short of breath, dyspnea occurring when he talked. He continued to cough, producing small amounts of sputum that contained polymorphonuclear cells but no organisms. At this point the history of exposure to birds in the pet shop was learned for the first time. Cephalothin

and kanamycin were discontinued and tetracycline therapy, 250 mg four times a day orally, was begun. On day 5, the patient was symptomatically much improved. The temperature fell below 37.8° (100°F) for the first time; arterial blood gases while breathing room air were: P_{CO_2} , 30 mm and P_{O_2} 62 mm of mercury, and the pH was 7.40. A chest roentgenogram showed interval clearing of the infiltrate in the left upper lobe while the right lower lobe infiltrate remained stable. An electrocardiogram was still normal. The patient remained afebrile and continued to improve symptomatically. Arterial blood gases were within normal limits by day 7, and the CPK was 189, LDH 240, SGOT 140, and aldolase 8.9 units by day 8. The patient was discharged on March 30, 1972. Tetracycline therapy was terminated two weeks later. Chest roentgenogram after discharge showed no abnormalities. The patient remained free of symptoms and was healthy and working when last seen six months later.

Measurement of LDH isoenzymes in a blood specimen obtained on the second hospital day revealed an absolute increase in all fractions with a relative increase in LDH 5. The specimen run had 1,600 units total, 8 percent Fraction I, 14 percent Fraction II, 15 percent Fraction III, 14 percent Fraction IV, and 49 percent Fraction V. Specimens for serologic tests* for mycoplasma, influenza A and B, adenovirus, Q fever, histoplasmosis, blastomycosis, coccidioidomycosis, mononucleosis, and psittacosis-lymphogranuloma venereum were drawn on March 20 and again on April 17, 1972. Only the psittacosis-lymphogranuloma venereum titers, which increased from 1:8 to 1:256, were diagnostic of disease.

Discussion

Although we did not attempt to isolate the psittacosis agent, the clinical manifestations, the response to tetracycline, and the pronounced rise of the psittacosis-lymphogranuloma venereum titers from 1:8 to 1:256 over four weeks ultimately confirmed that our patient had psittacosis.³ The source of his illness would seem to have been the pet shop where he worked; however, an inspection by the San Francisco Department of Public Health revealed no evidence of the disease in the birds or employees, and the proprietors denied any unusual illness among their birds. Therefore,

*Performed by the Viral and Rickettsial Disease Laboratory of the California State Department of Public Health.

CASE REPORT

it was impossible to establish the actual source of the illness. Of the 33 cases reported to the National Center for Disease Control in 1971, there were three in which no obvious source was identified.¹

The most prominent system involved in patients with psittacosis is the lung; however, the systemic nature of the illness has long been recognized, and headache, malaise, and myalgia are the usual presenting symptoms.^{4,5} Yow and associates reviewed the literature on the organ systems known to be involved: lungs, tracheobronchial tree, heart, liver, kidneys, brain, meninges, and spleen.⁵ Myalgia was noted in 17 of the 24 patients reported by Yow et al⁵ and in four of the nine patients reported by Schaffner et al,⁶ and it was stated to occur "commonly" in the 29 cases reported by Barrett and Greenberg.⁷ To the best of our knowledge, enzyme studies have not been carried out previously in these circumstances.

The pronounced elevation of CPK, aldolase, LDH, and SGOT in the presence of a normal electrocardiogram and normal mental status and neurologic examinations and normal levels of alkaline phosphatase and bilirubin indicates widespread involvement of the patient's muscle mass.⁸ This process appeared to be self-limited, as the enzyme levels began to decline toward normal and the symptoms began to subside before tetracycline therapy was begun.

Although myalgia is common in clinical cases of psittacosis, this may also be true in less severe cases, as is suggested by the increased incidence of myalgia among members of a population exposed to birds compared with a group not so exposed.⁹ The more frequent use of serologic studies in patients who have a sporadic "flu" syndrome

might give a better idea of the incidence of psittacosis infections. The major clue should be exposure to birds, whether psittacine, pigeon, or fowl;⁴ in such cases serologic confirmation should be obtained and tetracycline therapy considered.

Autopsy studies indicating degenerative changes of the rectus abdominus muscles in several fatal cases were reported by the British Ministry of Health following the 1929-30 pandemic of psittacosis.¹⁰ Two additional cases were described in a report by Binford and Hauser¹¹ in 1944; however, we are not aware of histologic confirmation of muscle involvement having been made in any nonfatal case of psittacosis.

REFERENCES

1. National Center for Disease Control—Psittacosis Annual Summary. U.S. Department of Health, Education and Welfare, Public Health Service, Health Service, and Mental Health Administration. Atlanta, Georgia, 1971 (Issued Dec 1972)
2. Liu C: Nonbacterial pneumonia, *In* Hoeprich PD (Ed): *Infectious Diseases—A Guide to the Understanding and Management of Infectious Processes*. Hagerstown, Maryland, Harper and Row, 1972, pp 325-338
3. Jawetz E, Schachter J, Hanna L: Psittacosis-lymphogranuloma venereum-trachoma group of agents, *In* Blair JE, Lennette EH, Truant JP (Eds): *Manual of Clinical Microbiology*. Bethesda, Maryland, American Society for Microbiology, 1970, pp 594-602
4. Meyer KF: Psittacosis-lymphogranuloma venereum agents, *In* Horsfall FL Jr, Tamm I (Eds): *Viral and Rickettsial Infections of Man*, 4th Ed. Philadelphia, J. B. Lippincott Company, 1965, pp 1006-1041
5. Yow EM, Brennan JC, Preston J, et al: The pathology of psittacosis—A report of two cases with hepatitis. *Am J Med* 27: 739-749, 1959
6. Schaffner W, Drutz DJ, Duncan GW, et al: The clinical spectrum of endemic psittacosis. *Arch Intern Med* 119:433-443, 1967
7. Barrett PKM, Greenberg MJ: Outbreak of ornithosis. *Br Med J* 2:206-207, 1966
8. Zimmerman HJ, Henry JB: Serum enzyme determinations as an aid to diagnosis, *In* Davidsohn I, Henry JB (Eds): *Todd-Sanford Clinical Diagnosis by Laboratory Methods*, 14th Ed. Philadelphia, W. B. Saunders Company, 1969, pp 710-748
9. Fessel WJ, Ilkin JS: Letter to the Editor: Myalgia and bird-keeping. *Lancet* 1:1403-1404, 1970
10. Sturdee EL, Scott WM: A disease of parrots communicable to man (Psittacosis). Reports on Public Health and Medical Subjects, No. 61, Ministry of Health, London, 1930, p 55
11. Binford CH, Hauser GH: An epidemic of a severe pneumonitis in the Bayou Region of Louisiana—III. Pathological observations—Report of autopsy on two cases, with a brief comparative note on psittacosis and Q fever. *Public Health Rep* 59:1363-1374, 1944